

Appl. No. 10/782,720  
Amdt. dated March 27, 2006  
Reply to Office Action mailed September 26, 2005

### **REMARKS/ARGUMENTS**

Claims 1, 3-39 are pending. Claims 1, 3, 13-15 and 23 have been amended herein. Claim 2 has been cancelled without intending to abandon or to dedicate to the public any patentable subject matter. As set forth more fully below, reconsideration and withdrawal of the Examiner's rejections of the claims are respectfully requested.

#### **Amendments to the Specification**

Applicants have amended the first paragraph of the Summary of the Invention to correct two minor typographical errors. Applicants submit that no new material has been added with these amendments to the disclosure.

#### **Rejections Under 35 U.S.C. § 112, Second Paragraph**

The Examiner has rejected Claims 13-15 and 23 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Specifically, the Examiner notes that the recitation of "the semiconductor sol" lacks antecedent basis in these claims. Applicants have amended Claims 13-15 and 23 to correctly recite "the sol gel nanodisk." In light of these amendments, Applicants submit that the pending claims are sufficiently definite to meet the requirements of 35 U.S.C. § 112, second paragraph.

Appl. No. 10/782,720  
Amdt. dated March 27, 2006  
Reply to Office Action mailed September 26, 2005

Claim Rejections Under 35 U.S.C. § 103

The Examiner has rejected Claims 1, 4 and 5 under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,791,338 (hereinafter "Bratkovski"). The Examiner argues that the nanodisk sensor of the present invention is rendered obvious in view of the gated nanoscale switch device shown in figure 2f of Bratkovski. Applicants have amended Claim 1 to recite the limitation of Claim 2, noted to be allowable by the Examiner (see the Office Action mailed September 26, 2005 at page 3, 4<sup>th</sup> paragraph). Bratkovski does not teach or suggest the use of a semi-crystallized structure having surface oxygen ions in place of the gold nanoparticles (42). In light of this distinguishing amendment and these remarks, Applicants submit that Bratkovski does not teach every limitation of the pending claims, as amended, and that there is no suggestion or motivation in the Bratkovski reference to make the currently-claimed sensor and therefore respectfully request that the Examiner's rejection under 35 U.S.C. § 103(a) be withdrawn.

New Claims 36-39

With this amendment, Applicants have added new Claims 36-39 reciting a sol gel nanodisk in direct ohmic contact with the electrodes. Support for this specific embodiment of the currently claimed invention can be found at least in Figure 1C and Figure 2A of the disclosure and at page 6, lines 13-15 of the specification.

The arrangement of components that form the sensor of these new claims differs from the components of Bratkovski. In the device of Bratkovski, a gated nanoscale switch is composed of

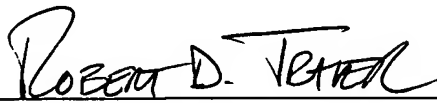
Appl. No. 10/782,720  
Amdt. dated March 27, 2006  
Reply to Office Action mailed September 26, 2005

colloidal nanoparticles (especially colloidal gold nanoparticles) deposited between two electrodes such that single molecular wires connect the nanoparticles to the electrodes. This device can function as a gated switch or device for measuring the electrical characteristics of conductive molecular wires. Bratkovski notes that the nanoparticles are conductive and the molecular wires are somewhat less conductive. Applicants submit that would be no obvious reason to eliminate the "somewhat less conductive molecular wires" and to replace the colloidal nanoparticles with a sol gel - to arrive at the nano-scale sensors of new Claims 36-39 - based solely on the disclosure of Bratkovski.

Based upon the foregoing, Applicants believe that all pending claims are in condition for allowance and such disposition is respectfully requested. In the event that a telephone conversation would further prosecution and/or expedite allowance, the Examiner is invited to contact the undersigned.

Respectfully submitted,

SHERIDAN ROSS P.C.

By: \_\_\_\_\_

Robert D. Traver  
Registration No. 47,999  
1560 Broadway, Suite 1200  
Denver, Colorado 80202-5141  
(303) 863-9700

Date: March 27, 2006